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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/517,126	03/08/2006	Gerd Schmaucks	E-1048	2783
20311 7590 02/08/2010 LUCAS & MERCANTI, LLP 475 PARK AVENUE SOUTH 15TH FLOOR NEW YORK, NY 10016				
EXAMINER LACLAIR, DARCY D				
ART UNIT		PAPER NUMBER		
1796				
NOTIFICATION DATE		DELIVERY MODE		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

info@lmiplaw.com

Office Action Summary

Application No.

10/517,126

Applicant(s)

SCHMAUCKS, GERD

Examiner

Darcy D. LaClair

Art Unit

1796

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 December 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4-7, 9 and 10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4-7, 9 and 10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/GS/US)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on **12/22/2009** has been entered.

All outstanding rejections, except for those maintained below are withdrawn in light of the amendment filed on **12/22/2009**.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Double Patenting

2. **Claims 4-7 and 9-10** are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over **claims 1-8** of copending **Application No. 11/718,590**.

The rejection is adequately set forth in **paragraphs 9-11** of the office action mailed **4/9/2008**, and **paragraph 5** of the office action mailed **10/15/2008**, and **paragraph 2** of the office action mailed **9/23/2009** and is incorporated here by reference.

With regard to the amendment to Claims 4 and 7 and new Claims 9 and 10, the copending application requires an engineering plastic (Claim 1) and defines the engineering plastic as acrylonitrile-butadiene-styrene, which is a type of acrylonitrile-butadiene rubber, and ethylene vinylacetate copolymer (EVA). (See p. 1 line 14-21)

Claim Objections

3. **Claim 10** is objected to because of the following informalities: The claim recites "wherein the_elastomeric resin consists of [...]" The underscore should be removed. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. **Claims 4-7, 9 and 10** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 4, 7, 9 and 10 recite the limitation "the elastomeric resin" however the previous language in the claim recites an elastomeric compound having a filler content of about 15% to about 500% by weight of resin. There is insufficient antecedent basis for this limitation in the claim.

Furthermore, it is not clear whether this is intended to recite an elastomeric compound consisting of the elastomeric resin or an elastomeric compound comprising

the elastomeric resin, as the weight of filler is recited as a part of a broader "resin" term. As the current recitation broadly recites "resin" and that the composition is an elastomeric compound, the examiner takes the position that the current recitation is drawn to a resin composition **comprising** an elastomer selected from the recited Markush group.

Claim Rejections - 35 USC § 103

Examiner's Note: The amorphous microsilica obtained from a process in which silica is reduced to SiO₂-gas and oxidized in vapor phase is stated in **Claims 4 and 7**, is stated in product by process format.

"[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985)

5. **Claims 4-7, 9 and 10** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Underwood et al. (US 4,201,060)** in view of **Emmett (1944, Industrial and Engineering Chemistry)**.

With respect to Claims 4 and 7, Underwood teaches preparation of a resin composition having particulate amorphous silica as a filler in loadings as high as 250 parts per hundred parts of resin (abs) included by being thoroughly mixed in with the resin. (col 5 line 24-30) Underwood teaches that the presence of amorphous silica can improve the rheological properties with a lower heat input, which would significantly

enhance the processability. (col 3 line 7-11) In addition, Underwood explains that the filler is of importance as it can affect properties such as the processing characteristics, (col 1 line 64) and indicates that better processability was experienced when using the amorphous silica. (col 5 line 45-48)

Underwood teaches that the nature of the filler (particle size, shape, and chemical constitution) is of importance because of its effect on the properties of a finished product, such as fire resistance, mechanical properties, and *processing characteristics*. (See col 1 line 56-64) The silica taught by Underwood is a substantially spherical amorphous silica particle obtained by a process by which silica is reduced and the reduction product is oxidized in the vapour phase to form silica, (see col 2 line 30-31) having at least 86% SiO₂, a density of 2.20-2.25 g/cm³, a specific surface area of 18-22 m²/g, and a particle size less than 1 micron, (See col 4 line 45-49) specifically exemplified as 0.15 microns (see col 5 line 68). Underwood teaches many advantages to this microsilica. There is a reduction in brittleness, higher impact strength, good chemical resistance, and the composition retains its flowability and has good processability; the microsilica also confers high thermal conductivity, which improves rheological properties, and improves fire and acid resistance. (See col 2 line 63-col 3 line 11) A large amount of filler can also be used when this microsilica is employed, which is a cost savings. (See col 3 line 12-15)

The composition of Underwood extends to mixtures of thermoplastic resins with elastomers, which are an "internal blend" of elastomeric domains and thermoplastic domain. (See col 2 line 40-47) Underwood also teaches the use of the silica in

thermoplastic elastomer resins which are rubbery material (see col 14 line 3-15), which contain EPDM, as well as in styrene-butadiene-styrene (SBS) elastomers (or SBR). (See col 14 line 67-68, col 15) The composition of Underwood includes PVC (polyvinyl chloride) with an elastomer as one of the specific embodiments. (See col 12 line 45-49) Emmett teaches mixtures of plasticized polyvinyl chloride resins with butadiene-acrylonitrile rubbers. (See Title, par 1) These mixtures have many useful properties, and allowed improved sunlight and ozone resistance, as well as resistance to benzene. (See p. 730, Discussion of Results) The physical properties are also improved by the addition of a plasticizing copolymer. (See paragraph bridging p. 730-731) It would be obvious to one of ordinary skill in the art to select butadiene-acrylonitrile rubber as the elastomer for preparing the composition of Underwood including PVC and an elastomer.

Underwood teaches that a large amount of filler can also be used when this microsilica is employed, which is a cost savings. (See col 3 line 12-15) Furthermore, Underwood teaches that carbon black can be used to obtain a dark colored PVC (see col 5, line 8-11) and that the silica is used in admixture with one or more other fillers to achieve a balance of characteristics in the composition. (See col 13 line 39-42) Emmett teaches semi-reinforcing black in 80 and 100 parts by weight (see Table 1, OR-15, OR-25) in the rubber copolymers. It would be obvious to one of ordinary skill in the art to use the carbon black in this content in the composition of Underwood in view of Emmett.

With respect to Claims 5-6, Underwood teaches that the microsilica can be employed at loadings as high as 250, preferably 150 parts per hundred of resin, (see

abstract) and indicates that no difficulties in processing were experienced, even at the highest filler loadings. (See col 16 line 41, 61)

With respect to Claims 9 and 10, Underwood also the use of the silica in thermoplastic elastomer resins which are rubbery material (see col 14 line 3-15), which contain EPDM, as well as in styrene-butadiene-styrene (SBS) elastomers (or SBR). (See col 14 line 67-68, col 15) Emmett describes PVC plasticized with butadiene/acrylonitrile rubber. (See p. 730, par 1) In this case, the elastomeric resin component is butadiene/acrylonitrile rubber (NBR).

6. **Claims 4-7, 9 and 10** are rejected under 35 U.S.C. 103(a) as being unpatentable over Černec et al. (WO 01/88055) in view of Underwood et al. (US 4,201,060)

With regard to Claim 4, 7, 9 and 10, Černec discloses a sealing material having less than 60% weight of graphite powder, and 30% weight of mineral fillers including microsilica having a BET surface area of 15 to 25 m²/g and a particle size under 5 μm, and 12% by weight of elastomeric binders. (See abstract) Based on 100 parts of elastomeric binder, this is up to 500 parts by weight of the graphite powder, and up to 250 parts by weight of the microsilica. The elastomeric binders include nitrile butadiene rubber (NBR), styrene butadiene rubber (SBR), ethylene propylene rubber (EPR), ethylene propylene diene rubber (EPDR), acrylate rubber (ACM), *inter alia*. (See p. 4, par 2)

Černec teaches that the microsilica in combination with the other fillers makes it possible to achieve a good packing density of the particles and confers good sealability

of the sealing material. (See p. 4 par 1) This means that the material can be easily processed into a sealing space. Černec does not explicitly teach a particular microsilica. Underwood teaches that the presence of amorphous silica in loadings as high as 250 parts per hundred parts of resin (see abs) can improve the rheological properties with a lower heat input, which would significantly enhance the processability. (col 3 line 7-11) This would be useful in a sealing material to allow it to be applied as gaskets and the like. Underwood teaches that the nature of the filler (particle size, shape, and chemical constitution) is of importance because of its effect on the properties of a finished product, such as fire resistance, mechanical properties, and processing characteristics. (See col 1 line 56-64) The silica taught by Underwood is a substantially spherical amorphous silica particle obtained by a process by which silica is reduced and the reduction product is oxidized in the vapour phase to form silica, (see col 2 line 30-31) having at least 86% SiO₂, a density of 2.20-2.25 g/cm³, a specific surface area of 18-22 m²/g, and a particle size less than 1 micron, (See col 4 line 45-49) specifically exemplified as 0.15 microns (see col 5 line 68). Underwood teaches many advantages to this microsilica. There is a reduction in brittleness, higher impact strength, good chemical resistance, (see col 1 line 56-64) and the composition retains its flowability and has good processability; the microsilica also confers high thermal conductivity, which improves rheological properties, and improves fire and acid resistance. (See col 2 line 63-col 3 line 11) A large amount of filler can also be used when this microsilica is employed, which is a cost savings. (See col 3 line 12-15) Underwood teaches the use of this microsilica in PVC/elastomer blends, as well as in

rubbery material (see col 14 line 3-15), which contain EPDM, or in styrene-butadiene-styrene (SBS) elastomers (or SBR). (See col 14 line 67-68, col 15) Furthermore, many of these benefits would be expected to transfer to any type of resin composition in which the filler was employed. It would be obvious to one of ordinary skill in the art to use the microsilica of Underwood, which is consistent with the size and BET surface area requirements of Černec's microsilica, both because it is consistent with the requirements set forth by Černec, as well as because of its particular advantages taught by Underwood.

With respect to Claims 5 and 6, based on 100 parts of elastomeric binder, Černec discloses up to 250 parts by weight of the microsilica. (See discussion, above.) Furthermore, Černec exemplifies a ratio of approximately 17 parts of microsilica to 9 parts of precipitated silica is exemplified. (See col 5, Table 1), which is up to 86 parts by weight of microsilica, as a preferred embodiment.

Response to Arguments

7. Applicant's arguments filed **12/22/2009** have been fully considered. Specifically, applicant argues

(A) Applicants request that the obviousness type double patenting rejection over application no. **11/718,590** be held in abeyance until the case is ready for allowance.

(B) Mitsuhashi teaches a fire retardant silicone rubber composition; Claims 4 and 7 have been amended to require selected polymers, none of which are silicon based

polymers. Thus Mitsuhashi neither teaches nor suggests the claimed invention. Furthermore, Mitsuhashi only discloses silica powders having a size less than 50 micron; this is much larger than the presently claimed silica particles. Underwood does not remedy the deficiencies of Mitsuhashi, and teaches a thermoplastic resin and particulate amorphous silica; Underwood does not relate to elastomeric resins.

8. **With respect to argument (A)**, Applicant is advised that the provisional obviousness-type double patenting rejection of record over application no. **11/718,590** is being maintained until properly overcome.

With respect to argument (B), applicant's arguments have been considered and the rejection has been withdrawn *in light of applicant's amendment*. Support for the amendment on page 4, lines 9-16 and p. 7 line 9 is acknowledged.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Darcy D. LaClair whose telephone number is (571)270-5462. The examiner can normally be reached on Monday-Friday 8:30-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Milton Cano can be reached on 571-272-1398. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Milton I. Cano/
Supervisory Patent Examiner, Art Unit 1796

Darcy D. LaClair
Examiner
Art Unit 1796

/DDL/